CHINA'S PROSPECTING TECHNOLOGY AND FACILITIES

Source: Chugoku Sangyo Shashin Tsushin (Photos and Features on Chinese Industry), published by the Asia News Service, Tokyo, No. 71, 1 July 1966, pages 1-6.

Advances in Aerial Surveying

It is well known that China is a country of vast size, varied geography and topography, and a complex variety of minerals and geological conditions. Since the liberation, geological investigation has continued on a large scale, and prospecting methods and techniques based on geophysics and geochemistry have now been generally adopted. Systematic aerial magnetic measurements have been carried out over the entire country in order to obtain basic geophysical data.

Significant aerial prospecting activity began in 1953 and already measurements have been made of five million square kilometers, or almost half the area of China. Although China was reputedly poor in petroleum, with the discovery of the Ta-ch'ing oil fields through aerial prospecting methods, China became self-sufficient at one swoop. Since aerial prospecting is done with magnetic measurements, radioactivity measurements and other geophysical exploration methods from aircraft, underground ores are prospected for with very sensitive measuring instruments. Compared to ground prospecting, aerial prospecting has many advantages, and it goes without saying that aerial prospecting has demonstrated great effectiveness in mountainous and desert areas where ground prospecting is bent with difficulties. Considering the small expense, the efficiency of aerial prospecting is very high, and requires little time. That is because it is possible to ascertain easily the ore distribution over a broad area and provide an over-all basis for planned exploitation. The amount of measurement work done in one year by one aircraft is equivalent to the total of that of thirty ground measurement teams.

After the beginning of the Second Five-Year Plan in 1958, because of the rise in national demands on the ore resources, China's aerial prospecting strength has been expanded. On the evidence of several years' records, the technological level has also rise quite a bit. In order to rapidly discover underground ores, aerial measurement personnel are divided in two groups, one in the air and one on the ground. When the expected situation is discovered by aerial measurements, it is immediately investigated by ground personnel, and if the results are favorable, geological studies are made. Under this method, it often takes no more than a few months from the beginning of aerial measurements until boring, and in the case of one large iron ore deposit, it is said to have taken no more than two months from the start of aerial measurement to the ascertaining of its value.

The greatest problem in aerial exploration is the guiding of the aircraft's flight, but even here remarkable progress has been made in these few years. At first, the method of setting up markers on the ground was used. This meant laying out a straight line on the ground by theodolite and putting up a large flag marker every kilometer. Since measurements are fast in aerial exploration, it was necessary for the people and cars which set up the signals to do so before the flight, which meant a loss of manpower and time. It is obvious that this method would not adequately answer the needs as aerial exploration came to be used more and more. For several years radio-fix and derivational apparatus were tested and are now in actual use. The machine could find its own position accurately based on radio signals received over any area and adjust the course. By using this new technique, measurement results and geographical location were more accurately related. The laborious work of the ground crews was eliminated, and more rapid measurement was made possible.

Construction of Latest Magnetometer

With the development of geological research activity, a more accurate measuring device was required for prospecting--particularly for aerial magnetic exploration--and China had great success here also. The young professors of Changchun Geogogical Science Academy's Physical Prospecting Devices Laboratory had repeated successes from 1958 to the present with aerial core-driven magnetometers, semi-conducting core-driven magnetometers, and pump magnetometers in research and tests. The first two magnetometers are already in production, and the fact that these devices have appeared is very noteworthy in that it puts an end to the backward situation in China, where, up to now, high-accuracy magnetometers were imported from abroad.

The professors and students of the Changchun Academy of Geology, Department of Physical Prospecting discovered that several area of China are magnetically weak and cannot be measured without a high-accuracy magnetometer, and they began study and trial manufacture of three types of magnetometers in 1958. At that time aerial saturation-type magnetometers imported from abroad were used in China, and the supply of these from the Soviet Union was cut off when relations worsened.

Many difficulties were encountered in trial manufacturer but in the spirit of working out one's problems by one's own power, these were overcome. In the study of the aerial core-driven magnetometer, the recording device, which is the point of this measuring instrument, consists of either conduction-typewriter types or punched-card types in those used abroad, but as many deficiencies are found in the conduction-typewriter type, an electric numeral substitution recorder was designed. The problem of automation was resolved, and after a year's efforts, success was obtained with the core-driven magnetometer and the semi-conducor core-driven magnetometer.

Research and trial manufacture of the pump magnetometer was an even more important task. These measurement devices are made in several countries abroad, but technical data were unavailable. They had had no contact with pump technology. On the detection head of this meter there are four large points, three of which were designed and manufactured by the Chinese themselves. By dint of great effort and study and after more than one thousand experiments in fifty odd days, they finally succeeded in making the fourth part--an infra-red polarizer. This trial manufacture and research were successfully completed with four months of the first plan due to their efforts.

The Physical Prospecting Instruments Training and Research Committee obtained a great deal of assistance from everywhere in the study and trial manufacture of this meter. More than forty research organizations, schools and factories worked for the birth of this meter. Within the school the abilities of a large variety of professors and student teams were called upon.

Approximately forty professors and students participated in research and designing of the aerial core-driven magnetometer, and based on the requirements for the parts and the general design of the meter, various methods were sought out. After the successful completion of the general design, the various concrete problems in parts and parts manufacturing were gradually resolved by means of mass discussions. In the design of the auto recording device, seven types were proposed after an analysis of the recording devices of physical prospecting instruments and medical instruments. When comparative studies were made on these seven plans, there were a number of developments and the electric recording method emerged, signifying a breakthrough in technological obstacles in meter design.

In the course of the research and testing, the Physical Prospecting Instruments Training and Research Committee fostered the development of men of talent. At first there was a scientific group composed of five young professors in the Committee which was weak, with an average age of less than twenty-four, but now the number of professors on the Committee is sixteen, all of whom have attained a command of UHF, high vacuum, infrared and pump techniques and acquired quite complete experience in the construction of magnetometers.

Research on Prospecting and Geological Facilities

Above is an example of the development of the latest measuring

instruments for use in prospecting, but the latest report of facilities for prospecting and geological investigation must include the double-beam autorecording infrared spectrophotometer successfully tested recently by the Peking Scientific Instrument Factory. This infrared spectrophotometer is an extremely high precision meter applying the principles of optics, precision mechanics, and electronic engineering, and which uses the infrared absorptivity of the material to determine the composition and nature of a substance, measure its purity, and make a qualitative and quantitative analysis of its elements and compounds. This method of analysis is very fast compared to usual chemical analysis methods, is very sensitive, and has the strong point of allowing analysis to be conducted when the sample is very small and without breaking the external form of the sample. Thus it has broad applications in industrial and scientific research fields--in petroleum, synthetic rubber and textiles, prospecting, pharmacentics, etc. The Peking Scientific Instrument Factory, under poor technical conditions and with rough facilities, carried on the success of the scientific research of related units of the Academy of Sciences of China, and with the assistance of more than ten factories it went on to manufacture special facilities and instruments, and subsequently suceeded in trial-manufacture of a spectrophotometer in only a little over four months' time.

Furthermore, the Nanking Earth Measurement Instrument Factory is mass-producing earth measuring instruments, which are important and necessary not only in geological exploration, but also in soil improvement, water-conservancy construction, etc. At present, the number of earth measurement devices supplied by the Nanking Earth Measurement Instruments Factory number more than forty, and these can produce reliable data on soil, temperature, humidity, viscosity penetration and saturation power, etc. The soil hardness meter recently successfully tested by this factory is simple in construction, small in size and only 6.3 kg in total weight. This meter is capable of automatic recording and is designed for multiple point recording. When using it, by turning the meter handle, a metal drill is put 200 mm into the earth and the data on soil hardness are automatically recorded on recording paper. Eighty hardness coefficients can be recorded before changing the paper.

Studies on the Geological Age of Granite in South China

Even on the basis of the above fragmentary reports, it can be seen that in the decade or so since the liberation prospecting technalogy has made great strides forward in China. In fact, great discoveries have been made which provide now knowledge and stimulate the advance of prospecting activity. The most characteristic discoveries have been made in research by professors and students of Nanking University's Department of Granite Geology on the geological period of granite in the South China area.

Granite is widely distributed in South China area, particularly in the provinces of the Southeast. It occupies roughly one quarter of

the total area. Over the past forty years this granite has generally come to be regarded as having been formed in the geological age called the Yen-shan period, more than one hundred million years ago. With the large-scale advances of measurement and general geological investigations since the liberation, the following problems have been frequently encountered. In some granite there is ore and in some granite, there is none; in some granite there is one kind of ore and in other granite, there is another kind of ore. If all the granite was formed in the same period, why are these differences produced?

The professors and students of the Department of Geology of Nanking University did not blindly accept the conclusions of their predecessors, but on a basis of respect for the results of their predecessors' studies they began field investigations and initiated research on the problem of why theory and evidence were somewhat contradictory. In the fall of 1957 Professor Hsu K'o-ch'in (1776 0344 0530) Department of Geology led a number of students in discovering granite from the Caledonian period, approximately 200 million years earlier than the Yen-shan period, with exact proof from geological boring in southern Kiangsi Province. They attached very great significance to this discovery and they decided to take up the topic very seriously and continue their research in depth. After 1958 the number of individuals participating in the research was more than eighty professors from six training and research committees and more than one hundred advanced students. They made comprehensive studies of the granite of the South China area from the fields of local geology, structural geology, petrology, mineralogy, geochemistry, ore deposits and isotope geology.

Over a period of eight years they have made geological measurements of an area of approximately 50,000 square kilometers where granite is concentrated, and have observed more than two hundred granite bodies, studied them, and collected several tens of tons of granite and ore samples. In the laboratory they have performed a large number of analyses, evaluations and experiments. Chromatography was carried out more than eight thousand times for a large number of the granite samples collected, and more than six thousand thin sections of granite were evaluated. Furthermore, for a large number of rock specimens, various precise analysis and determination of absolute age. From a large quantity of scientific data a series of important principles were found.

The professors and students arrived at the following conclusions through repeated study and investigation of evidence over a period of eight years. The granite of the South China region is not of a single age but belongs to four geological periods. These four periods are:

Hsueh-teng	ca.	600-800 million years ago
Caledonian	ca.	380-480 million years ago
Indonesian	ca.	180-230 million years ago
Yen-shan		90-230 million years ago

It is also clear that within the same period some granite is earlier and some later.

Rough relationships were found between the granite of each era and the ore deposits therein. For example, gold ore is associated

primarily with the hsueh-feng and Caledonian eras, and tin is associated chiefly with the Indonesian and Yen-shan periods, while tungsten is related with granite of the Yen-shan era, some particularly with the late Yen-shan period.

Furthermore, referring to material related to the era of production, the regularity of geographical distribution of granite in different periods is related with local geography. According to this principle, it became possible to predict what types of ore should be found in any given locality, and comparatively effective prospecting was carried out in certain areas in connection with other geological conditions. Thus a great deal of the hit-and-miss factor in mining exploration has been eliminated.

Furthermore, based on the characteristics of history and local geology of granite formation in the south China area, a new concept of the nature of the land structure of the South China area emerged, and elementary investigation has been carried out on theoretical problems of the relationship of geological structure and the formation of different types of ores granites. This is thought to be something which will provide still more advantages in the development of geological theory and guidance of prospecting activity.

Photo Captions

1. Investigation Team from the Soil Research Institute of the Chinese Academy of Sciences making a study of loess hills which runs through the southern part of Chekiang Province. (CIA 1147634)

2. Electronic automatic voltmeter produced by the Shanghai Geological Instrument Factory. Measures differences in potential in geological studies in the DC meters. (CIA 1147635)

3. Stone density meter, produced at Peking Geological Instrument Factory. Measures the humidity and density of rocks which do not dissolve in water. Used in geological research and mining laboratories. (CIA 1147636)

4. (Above) Chinese-made, $BaT:C_3$ crystalloid oscillation converter. A device for changing oscillatory movement into electric energy, used for sea-floor earthquakes and prospecting. (CIA 1147637)

(Below) Chinese-made earthquake oscillation converter. Used in earthquakes and prospecting by means of radioactivity and refraction, it converts movements of the earth's surface into electricity. (CIA 1147639)

5. Professors and students of the Department of Geology, Nanking University, have divided the formation of granite in the South China area into four periods and clarified the relationships between the granite of each period and the minerals in it. In the past forty years Chinese geologists had thought that the granite of this area was formed one hundred and eighty million to ninty million years ago in the Yen-shan period, and the discovery at the university is recognized to have

great significance for prospecting construction. The photo shows members of the Department of Geology at Nanking University who are studying granite. (CIA 1147640)

6. Samples of South China granite shown to belong to four geological ages. The two on the extreme left are of the Hsueh-feng period (600-800 million years ago), the second two from the left are from the Caledonian period (380-480 million years ago), the third two from the left are of the Indonesian period (180-230 million years ago); and the two on the extreme right are of the Yen-shan period (90-180 million years ago). (CIA 1147641)

7. Measuring the absolute age of granite at Nanking University's Department of Geology. (CIA 1147641)

TELEVISIONS AND TRANSISTOR RADIOS IN CHINA

Source: Chugoku Shogyo Shashin Tsushin (Photos and Features on Chinese Industry), Tokyo, No. 69, 1 June 1966, pp 1-7

Television Broadcasting in China

It was eight years ago, 1958, that television broadcasting was begun in China. In May of that year, the Peiping Television Station started experimental broadcasting, and launched a program of regular broadcasting from the second of September the same year. All the television facilities at the time were domestic products, which were completed within a short time of one year from design to the final production and broadcasting period. Shouts of joy were heard everywhere, when the image first appeared on the domestic TV screen with the Peiping mark. In the period of eight years since then, fourteen television stations have begun operating throughout China, broadcasting their own independent programs. The Peiping and Tientsin stations mutually exchange and relay each other's broadcasts, and the TV stations in other cities supplement their programs with television programs sent from the Peiping television station.

In China, all expenses of television broadcasting are subsidized by the government, and no fees are collected from the audience. The reasoning behind this is that television broadcasting in China is strictly a means of furthering the education of the people for the purpose of socialist revolution and socialist construction. Consequently, educational activities through the television medium are most active, which presents quite a contrast to the entertainment-oriented television broadcasting in Japan.

For instance, the Peiping Television Station operates

on two channels, one of which is devoted to the administration of a "television university" and its affiliated middle school. The remaining channel is devoted to general programming. The Peiping Television College (a so-called correspondence college in which instruction is given by television broadcast; operated by the Peiping Television Station) was established in 1960. It now has five departments--mathematics, physics, chemistry, Chinese, English--and offers 29 courses. This spring, the number of students of the Peiping Television College was 8,283, and the number of auditors was 7,849 students. In a period of a little more than five years, more than 36,000 students have completed at least one course, and the number of graduates from the regular curricula is 4,845 students. For the purpose of advancing intellectual levels and teaching science and technology to the workers, the television college's affiliated middle school was established two years ago. This middle school offers three courses--language (Chinese), drawing, and mathematics--and has a student body of 3,452 students. Upon graduation from the affiliated middle school, the student can immediately enroll at the TV College.

The broadcasts of the TV College begin at 6:10 in the morning and last until 8:20 in the evening, and the time devoted to educational broadcasting exceeds 40 hours per week. The instruction at this television school consists of three forms of teaching--TV instruction, correspondence instruction, and personal instruction. Any worker with the equivalent of a high school education who passes the entrance examination can enroll at the TV College. Final examinations are administered at prescribed locations, and certificates of graduation and credentials for course completion are issued. There are some 1,000 places in the municipal and suburban areas of Peiping, where one may attend the TV school. These places are not only equipped with staff members who guide individual studies, but also with a small laboratory where experiments in the field of physics and other sciences can be performed. At many plants and people's communes, there are TV classrooms specifically for the students of the TV College to study and prepare for examinations. The students are permitted to devote part of their working hours to their studies.

As an example we note that in the city of Wuhsi in Kiangsu Province, although there is no television broadcasting station, an amateur TV college was established in 1961. This college is run by relaying the broadcasts of the Shanghai Television Station by using the old shrine on the top of the mountain as a relay station. They are now experimenting with heterodyne relay broadcasts of an unsophisticated type. In the course of five years since its establishment, there have been some 330 students at the Wuhsi amateur TV college who have completed on course or another, and have produced a first

graduating class of 39 students..

Speaking of general programming, on the other hand, the Peiping Television Station operates six days a week, and the broadcasting time is about 3 hours a day. It highlights a difference in orientation between Chinese television broadcasting and the Japanese, in which several stations are simultaneously broadcasting from early morning until late evening. For such occasions as holidays, summer and winter vacations from school, special programs are added to the regular ones for the general audience and the young people. The general programming consists of three classes of programs--the news and reports, social education programs, and programs dealing with the arts, of which the arts programming constitutes more than half.

The Peiping Television Station is equipped with three studios, two domestic television relay stations, and a television theatre with a seating capacity of one thousand. The largest studio, with a size of 600 square meters, often broadcasts the TV drama series performed by the television drama group, the performances of orchestras, choruses, folk music groups, and folk art groups as well as broadcasting the performances of well known actors or actresses, drama groups, bands, and presenting concerts and circuses from other areas as well as Peiping. They also do stage relay, and the performances of visiting foreign drama groups and music groups appear on Peiping television.

It appears that in every country, children are a most enthusiastic and ardent audience of television. In China the utmost efforts have been made to produce programs that will foster in children such attitudes as the spirit of serving the people, loving labor, respecting the workers, and the attitude of valuing and loving science and also caring for the group. In devising such programs, care has been made to incorporate the characteristics of children. In Chinese television broadcasts, no programs are allowed that may foster or instill in children a sense of fear, the notion of murder, or a sense of corrupt morality. Programs are usually over by 10 o'clock in the evening, thus eliminating the concern and fear of the parents that their children's health might be impaired or that their children will be deprived of time for studying and preparing school lessons.

Phenomenal Expansion of TV Sales

In comparison to the history of TV broadcasting in Japan, where every household is now equipped with at least one TV set, the present situation of TV broadcasting in China presents a noticeable contrast in terms of program variety and quality and also the distribution of TV sets. However, it is unmistakable that TV sets are being rapidly distributed

throughout the country. Even though national statistics are lacking, in the case of Shanghai, the sale of TV sets has continued to rise. The total sale of TV sets in 1964 was twice as much as that of 1963. The total sale of TV sets in the Shanghai suburbs in 1965 was twice as much as that of 1964. TV sets are being produced in Shanghai and Tientsin, and the first domestic TV sets appeared on the market in Shanghai in October 1960. In the short period of several years since, the quality of TV production has become stable and has improved, showing an expansion in terms of production quantity and variety, with a consequent reduction in sale price.

Against this background of TV popularization, the completion of the TV tower and official commencement of broadcasting at Yueh-hsiu-shan in the city of Canton in Kwangtung Province deserve special note. This is a self-reliant TV tower with a height of 200 meters, the design of which is rich in national characteristics. The tower pillars are of triangular shape consisting of circular rods, with an octagonal top and the tower base is of a diameter of 50 meters. There are two large observation platforms installed, and the tower is also equipped with an elevator.

In this respect, one should also note the progress made in the TV industry. For instance, according to a dispatch of the New China News Agency on 4 December of last year, the Liaoning Broadcasting Instrument Factory has succeeded in its efforts to trial-manufacture kineoscope equipment to be used for TV stations. Due to the lack of special facilities, the broadcasting of movie programs by the TV stations in China up to the present has been done by the method of projecting movies onto a screen and then taking a picture of it with a TV camera. This picture is converted into image and sound symbols, and then transmitted over the antenna of the TV center. Admittedly, this is a simple method. However, the need of having to go through an additional step in transmission results in the reduction of clarity and the picture is inevitably vague on the receiving screen. The newly completed kineoscope has a special device in it which makes it possible to convert movies directly into signals and then transmit them over the antenna. Consequently, the picture projected by the Braun tube is much clearer. The trial production of this kineoscope has been made possible by the assistance of the Peiping Broadcasting Research Institute.

The Anshan Broadcasting Equipment Plant is producing industrial television equipment. This equipment is very useful for the examination of underground petroleum or underwater facilities. The use of this equipment at railroad and freight stations enables the freight clerk to observe at a distance. In many other fields of industry, it makes the work easier, safer, and faster. More important, it frees the worker

from danger and unhealthy work.

Transistor Radios in Great Demand

In the field of radio receivers in China, the production and popularization of transistor radios in recent years is very remarkable. The manufacture of transistor radios in China is a new and rising industry that has made noticeable progress in the past few years. In line with the progress in the wireless electronics industry, the manufacturing technology of transistor radios in China has achieved remarkable progress, both qualitatively and quantitatively. At present, complete systems of production have been perfected, from the manufacture of transistors and miniature parts to the assembly of radios. And all the parts and raw materials are domestically supplied.

At present in China, forty some varieties of transistor radios are being manufactured. Among others, the following brands are of relatively high quality and are popular in the cities and rural communities: the "Mei-to model 28A 8 transistor portable," the "Mu-tan model 840Z 8 transistor portable," the "Hsiung-mao model 801 8 transistor table radio," the "Hung-hsing model 401-A 4 transistor radio," and the "Ch'ang-ch'eng model 644 4 transistor radio."

In terms of circuitry type, the transistor radios in China can be classified into two groups. One is the regenerative type, which has a relatively simple structure, a relatively short distance of reception, and a cheap price. Radios of this type are most suitable for use in or around the cities. The other is the super heterodyne type, which has a relatively complicated structure, a beautiful appearance, and a relatively high electrical and sound quality. Radios of this type are suitable for use in the rural communities far away from the cities or in the field of forestry, stock farming, farming or fishing. On the other hand, with respect to appearance, they can be grouped into three classes: the compact model, the portable model, and the table model. The compact transister radios, made with miniature components, have a size approximately equivalent to that of a cigarette pack, and are easy and convenient to carry. Radios of this type are favored and heavily used by newspaper reporters, geological surveyors, and other people walking constantly outdoors. The table model in general uses large parts and is beautifully styled. It has a clear sound and outstanding tonal quality. Radios of this type are mainly used in households in the cities and rural communities.

The rapid popularization of transistor radios in China stems from a unique condition quite different from the case of Japan. Unlike Japan, China has many remote mountainous and

pastoral areas and rural villages with no source of AC electric power. It is hardly possible for the people living in these remote areas to listen to broadcasts from the people's broadcasting stations in various municipal districts. Under this circumstance, it became imperative for the Chinese Communist Party and the People's Government to rapidly popularize transistor radios for the purpose of massive promotion of the ideological education movement. For this reason, the transistor radio industry in China has become a most rapidly growing industry. The number of models and varieties is increasing rapidly, and only last year several new products appeared on the production line. In each segment of the industry, considerable efforts are being made for research and production of new products. The extent of domestic consumption is extremely high, and despite the several-fold increase of production quantity, the supply still remains insufficient.

Due to improvements in the living standards of a wide segment of farmers, the consumption of transistor radios is constantly increasing. For this reason in the past several years a number of measures have been adopted to increase production variety, improve quality, reduce costs, and expand production. In this manner, the transistor radio manufacturing industry in China is on the road toward ever greater progress and a greater future.

Recent News on Major Plants

In the following, we introduce some recent news on transistor radio plants in various areas.

--The Second Shanghai Radio Plant: produces "2J1 and 2J3 table model transistor radios."

--The Third Shanghai Radio Plant: has been producing the "28A medium and short wave portable transistor radio." As a new addition, it now produces the "27A 7 transistor radio," half the size of the 28A model, which can be easily carried in one's pocket, and produces a clear tone even on the short wave bands.

--The Fourth Shanghai Radio Plant: originally started with the production of "model 4B 3 6 transistor radios" (pocket type, size of a cigarette pack) but now produces the "model 4B 3 automobile radio," thus contributing a valuable item to the automotive industry. Due to the attachment of a 5W amp-speaker, this model can now produce sound nine times as large as the previous model. For this reason, this model can be installed either in small sedans or large automobiles. In addition, other items of production include "4B 1 table model transistor radio," and "2P 1 and 4B 2 simplified 3

transistor radios."

--The Nanking Radio Plant: has been producing the "Hsiung-mao" radios in the past, and in 1963 succeeded in trial manufacture of table model transistor radios. Further, in 1964 it began mass-producing 7 transistor pocket model radios and 8 transistor portable radios. This year the plant has begun production of model B 611 table model transistor radios. This model is comparable in size to a large lunch box, able to receive some 30 stations, has good sound quality and appearance, and more than anything else, costs less. This year the plant has also begun mass-production of the B 302 model, a popular 3 transistor radio primarily for the rural communities. Comparable in size to a large aluminum lunch box, this model has a high degree of sensitivity and can receive not only the Peiping broadcast but also the broadcasts from some ten provinces and cities. Tuning and selectivity are fairly good; even with the jamming of several powerful stations in one district, the noise level is negligible. It produces big sound and has good tone quality. Assuming three to four hours use a day, two simple batteries would suffice for two and a half months. As early as 1964 this plant engaged in test production of the popular model 3 transistor radios. But the designers and technicians were more concerned with the production of technically sophisticated goods. As a consequence, production costs were high (50 to 60 yuan per set), electricity consumption was high and the size of the radio was large. As a whole, the product was not a practical item and had never been produced on a large scale. In view of this condition, criticism that the plant was too exclusively concerned with the production of high-class transistor radios and was excluding products specifically designed for the rural population grew stronger. This criticism is said to have prompted the production of the popular B 302 model 3 transistor radio. It is thus evident that what is most consumed by the rural communities are not the high-class expensive products but the low-priced products of good quality.

--The Kirin Province Radio Plant: this factory has been most successful in producing popular-type radios for the rural communities. The model 464 3 transistor radio for rural use produced by this plant won the first prize in August 1964 at the Peiping national competetive exhibition of radio receivers, and it has also been awarded the praise and encouragement of the nation. The sale of this brand of radios is high, not only in Kirin Province, but also in Peiping and Harbin. Further efforts have been made at the plant to improve the quality of popular products.

--The Peking Radio and Capacitor Plant: in the past, this plant had been producing only a few varieties of capacitors for regular vacuum tube-type radios, but in 1964 it succeeded in the test production and subsequent mass-production of four types of small and miniature capacitors for 7 and 8 transistor radios. In this production list is included the production of tetron capacitors. It is the first time in the history of Chinese industry that the tetron capacitor has been produced domestically.

--The Wuhan First Light Industry Research Center: at the center they have finally succeeded in the test production of colloid electrolyte transistor radio batteries with long life. Ordinary transistor radio batteries last about 30 hours. In contrast, however, this battery when full charged lasts also 30 hours but can be recharged as many as fifty times, thus its useful life totals some 1,500 hours. A micro-charger is attached to the battery, which can be directly connected to any household power outlet. The charger costs 2 yuan, and lasts fairly long. Storage batteries of this type differs from the ordinary type batteries in that the former contain sulfuric acid paste, whereas the latter contain a sulfuric acid solution. This paste is manufactured by a special process; both its water content and its total volume are small. It is quite suitable for use in small batteries. The use of these colloid electrolyte batteries is extensive and includes their use in flashlights, traffic signal lights, mining lights, and all types of measurement instruments.

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Photo Captions

Photo 1: Industrial television installed at the chunk rolling mill at the Second Rolling Factory of the Anshan Steel and Iron Company. The television set was produced by the Liaoning Province Broadcasting Instruments and Materials Plant.

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Photo 2: The "Shanghai" television on the production line at the Shanghai Broadcasting Instruments and Materials Plant. All of the parts are domestically produced.

Photo 3: The "Peking" television being mass-produced at the State-operated Radio Factory in Tientsin Municipality. Ever since the initial production in 1958, product quality has been constantly improved through the efforts of laborers and technicians at the plant.

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Photo 4: Assembly of the model 27 A transistor radio at the Third Shanghai Radio Factory. The production at this plant in the first quarter of 1965 showed a 43% increase over the fourth quarter of 1964.

Photo 5: Inspection of the "Mei-to model 28A" 8 transistor radio at the Third Shanghai Radio Factory before shipment. This set receives both short-wave and medium-wave broadcasts, and the domestic sale is fairly good.

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Photo 6: Inspecting and packing "Hsiung-mao" 601-3G and 601-4G vacuum tube-type radios before shipment at the Nanking Radio Factory.

Photo 7: Shanghai-produced radios and phonographs for sale at a retail store in Shanghai.

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